

EUROPEAN PATENT APPLICATION

Application number: 90302856.1

Int. Cl.⁵: **B63H 21/26**

Date of filing: 16.03.90

Priority: 16.03.89 GB 8906028

Date of publication of application:
19.09.90 Bulletin 90/38

Designated Contracting States:
AT BE CH DE DK ES FR GB GR IT LI LU NL SE

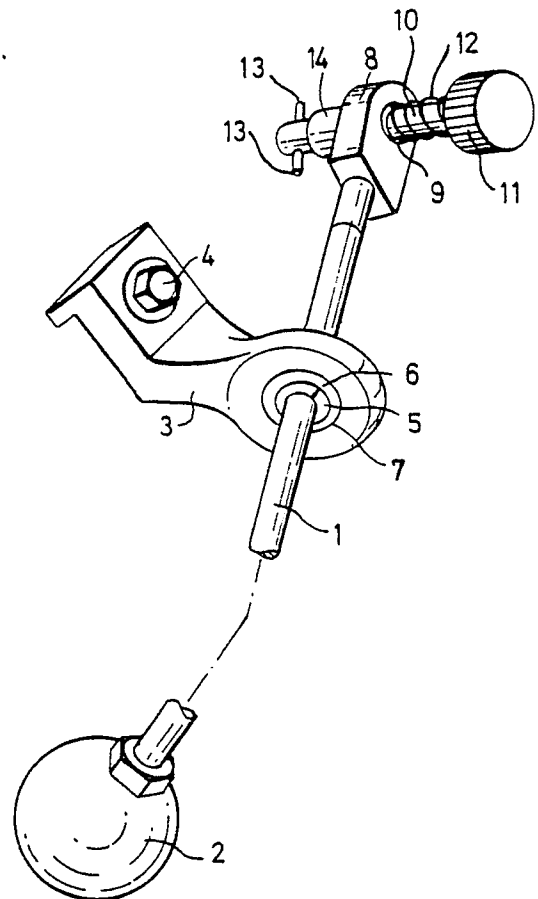
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Mounting and control of outboard motors.

To facilitate easy gear change on an outboard motor mounted in close juxtaposition with another such motor an auxiliary gear lever comprises an elongate (20-40 cm) rod 1 with knob 2 sliding at 5,6 in bracket 3 and attached at the inner end (8-13) to the gear change lever.



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MOUNTING AND CONTROL OF OUTBOARD MOTORS

THIS INVENTION relates to, outboard motors for light marine craft, and in particular to the placement, steering, and control of two or more such motors arranged for joint driving action at the stern of such a light vessel.

It is of course well known to provide an outboard motor as a fitment at an end of a light marine craft. Typically this motor is bolted or clamped to the transom and provides motive power to a submerged propeller from an internal combustion engine at its upper part. Steering is effected by swinging the whole motor round a vertical pivoting axis using a forwardly-projecting steering tiller and power to the motor, is typically controlled by a twist grip upon this steering tiller connected to a conventional throttle.

It is also well known to mount two or more such motors side by side at the rear of the craft, to provide increased power. The invention is particularly concerned with such arrangements. For convenience of description it will refer to a twin motor arrangement, it being understood however that similar arrangements for a triple motor mounting also fall within the scope of the invention as defined below.

When two motors are mounted side by side at the stern of a vessel, some provisions must be made for convenient control of steering and of power motors. One known arrangement provide a detachable bar to connect the two tillers, so that movement of one tiller automatically involves movement of the other tiller. Typically, with such an arrangement a separate throttle control is envisaged.

Another known arrangement, as described in our earlier G.B. Patent 2031362 is to provide an additional single tiller. Such a tiller is connected to one of the motors, and protrude forwardly essentially along the longitudinal median line of the vessel. The two motors are themselves interconnected by a tie rod, adjustable in length, between two motor mounting brackets. Push pull throttle cables extend from the additional tiller to each motor, and a joint gear change unit with connecting cables is attached to one side of the additional tiller. In use, the individual tiller arms are folded up out of the way, and the single additional tiller arm is used to control both ends steering and power.

Such an arrangement, while convenient for larger engines and readily useable in that only one tiller protrudes forward from the motors, is somewhat elaborate and expensive. Accordingly, it has recently been proposed by the present Applicants to utilise a further type of interconnection, comprising two parts. One part is a rod interconnecting the

steering brackets of the two motors, so that as one motor turns for steering the other motor turns with it. The other part is a rod connected to the twist portion of the relative throttle grips, so that as one twist portions turns to control the throttle the other twist portion also turns.

In this arrangement, instead of a single tiller there still remains both existing tillers, but either can be used to control both engines.

In a study of such twin motor systems, we have realised that joint control arrangements can vary in accordance with the size, cost, and intended use of the craft, and that moreover their effectiveness is also linked to the accuracy of alignment of the two motors at the stern of the vessel, and to the accessibility of other controls such as gear levers. The present invention, while being generally concerned with the production, control, and use of a twin or like motor system for marine craft, is particularly concerned with such areas of improvement.

This invention sets out to provide an improved gear control especially suitable for a twin or like outboard motor assembly.

Typically, the gear lever on an outboard motor, which enables the user to select forward neutral reverse gears, is located to one side of the motor housing. It takes the form of a short (e.g. 10 - 15 cm) upstanding arm with an operating knob at the end. When only one motor is in use, the location of such a gear lever presents no particular problems. When more than one motor is in use, or possibly if a single motor is otherwise encumbered by its environment, the location of the gear lever can be disadvantageous, since it is located in the gap between two motors and also typically behind the operating area of a single additional tiller.

The present invention consists in a gear lever assembly for an outboard motor, characterised by comprising an elongate rod terminating in a handling knob, a mounting bracket slidably surrounding the elongate rod and adapted for attachment to the mounting plate of the motor, and means at the inner end of the rod, remote from the handling knob, capable of engagement with the shaft of an outboard motor gear change mechanism; whereby when the mounting bracket is attached to the motor mounting plate the elongate rod extends forwardly from the motor for actuation by sliding within the bracket.

Preferably the rod is of a sufficient length to be operable well clear of the motor mechanisms. It may be for example from 20 to 40cm in length.

By using a rod extension as defined above the effective gear change movement can be carried out

conveniently and at a location more or less adjacent to the twist grip of an additional controlling tiller.

The invention will be further described with reference to the accompanying drawing, which is a general view of a gear lever attachment assembly constituting one embodiment of the invention.

In Figure 1 a forwardly extending rod 1 of angled configuration as shown diagrammatically terminates in a round knob 2 and is slidably mounted in bracket 3 attached by bolt 4 to a mounting bracket of the outboard motor engine. Sliding attachment is effected by means of split polymer ring 5 within an elastomeric bush 6 located in a suitable through aperture 7, of the bracket, so that the rod can be slid to any desired location and left at that position being resistant to small forces tending to change its location but being nonetheless readily movable on intended action.

At the inner side of the rod is formed a metal connector 8, having a transverse bore 9 within which is located a transverse pin 9. One end of the rod 10 is knurled at 11 and this end is spring biased away from the metal connector 8 by surrounding compression spring 12. The other end of the rod 10 possesses oppositely directed connecting pins 12, against which a surrounding sleeve 14 bears, with interposition of a washer (not shown) so as to counteract the biasing force of spring 12.

Claims

1. A gear lever assembly for an outboard motor, characterised by comprising an elongate rod terminating in a handling knob (2), a mounting bracket (3) slidably surrounding (5,6) the elongate rod (1) and adapted (4) for attachment to the mounting plate of the motor, and means (8-13) at the inner end of the rod, remote from the handling knob (2), capable of engagement with the shaft of an outboard motor gear change mechanism; whereby when the mounting bracket (3) is attached to the motor mounting plate the elongate rod (1) extends forwardly from the motor for actuation by sliding within the bracket (3).

2. A gear lever assembly as claimed in claim 1 in which the elongate rod (1) is from 20 to 40 cms long.

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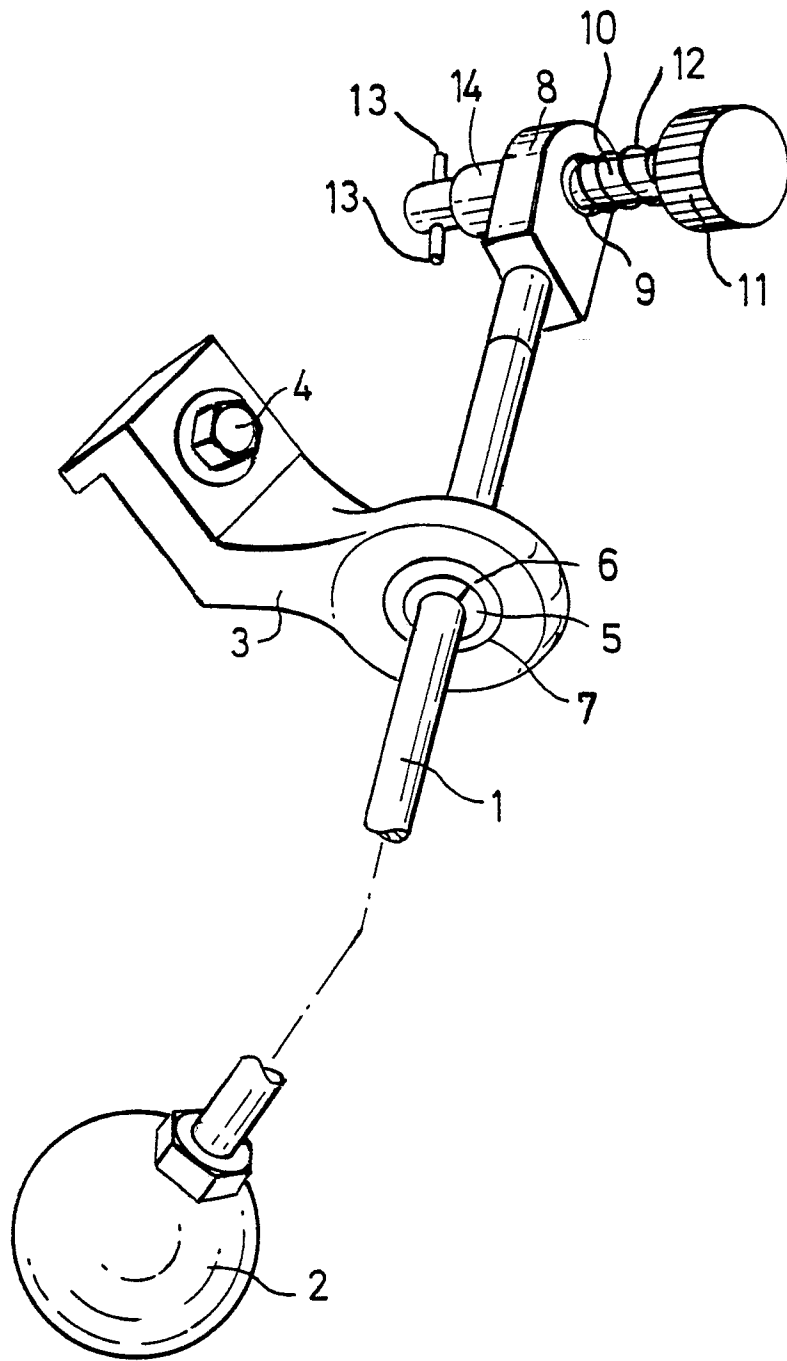
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	US-A-3 073 278 (BREWSTER) * Column 2, line 38 - column 3, line 36; figures 1-5 *	1,2	B 63 H 21/26
Y	US-A-4 412 826 (JONES et al.) * Whole document *	1,2	
A	US-A-3 670 687 (ROWLEY) * Abstract; figures 1-3 *	1,2	
A	FR-A-2 126 037 (TELEFLEX INC.)		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 63 H
Place of search	Date of completion of the search	Examiner	
THE HAGUE	25-05-1990	DE SENA Y HERNANDORENA A	
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